

**CLAIMS**

1. A process for separating supercritical or near-critical gas mixtures containing hydrogen, inert gas, methanol and fatty alcohols under pressures of 100 to 300 bar, characterized in that the compressed mixtures  
5 are expanded in three stages, the pressure range of the first stage being between 50 and 150 bar, the pressure range for the second stage being between 10 and 50 bar and the pressure range for the third stage being between 1 and 10 bar.
2. A process as claimed in claim 1, characterized in that the mixtures  
10 emanate from the hydrogenation of fatty acid methyl esters to fatty alcohols.
3. A process as claimed in claims 1 and/or 2, characterized in that the mixtures contain propane as the inert gas.
4. A process as claimed in at least one of claims 1 to 3, characterized  
15 in that the inert gas is recycled with excess hydrogen.
5. A process as claimed in at least one of claims 1 to 4, characterized in that the recycled mixtures contain up to 5 mol-% methanol.
6. A process as claimed in at least one of claims 1 to 5, characterized in that the mixtures contain 1 to 4 mol-% fatty alcohols.
- 20 7. A process as claimed in at least one of claims 1 to 6, characterized in that the mixtures contain 10 to 20 mol-% hydrogen.